TM220

1.1 MANUFACTURERS

A. Acceptable Manufacturer: Raynor, which is located at: 1101 East River Rd. P. O. Box 448 ; Dixon, IL 61021-0448; Toll Free Tel: 800-4-RAYNOR; Tel: 815-288-1431; Fax: 888-598-4790; Email: request info (thegarage@raynor.com); Web: www.raynor.com

1.2 SECTIONAL THERMAL POLYURETHANE INSULATED SANDWICH DOOR

A. ThermaSeal as manufactured by Raynor Garage Doors:
   1. Doors:
      a. Operation (select from list below):
         1) Provide doors designed for manual operation.
         2) Provide doors designed for hand chain operation.
         3) Provide doors designed for electric motor operation.
      b. Jamb Construction (select from list below):
         1) Steel jambs with self-tapping fasteners.
         2) Wood jambs with lag screw fasteners.
         3) Masonry jambs with anchor bolt fasteners.
      c. Structural Performance Requirements (insert required wind load psf):
         1) Wind Loads: Uniform pressure of: _____ psf.
      d. International Energy Conservation Code (IECC) Requirements
         1) Air Infiltration – Maximum air leakage of 0.4 cfm/ft^2 is required. Testing shall be in accordance with DASMA 105 test procedure.
         2) TM220 provides an air leakage rate rating of 0.12 cfm/ft^2 with optional IECC Compliance Package.
         3) TM220 provides an installed U-factor of 0.19.
   2. Sections:
      a. ThermaSeal TM220:
         1) Sections shall be pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
         2) Material: Steel sandwich construction, 2 inches (51mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be constructed of 20 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.
         3) Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.
            a) Color: White polyester paint.
         4) Insulation: Expanded polyurethane with R-value of 18.3.
      b. Seals: Interior and exterior skins to be separated by continuous hot melt to form thermal break and complete weatherseal along section joint. Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional dual-durometer vinyl blade seal on top section to prevent airflow above header

c. Trussing: Doors designed to withstand specified wind load. Deflection of door in horizontal position to be maximum of 1/120th of door width.

3. Windows: Locations to comply with door elevation drawings. Select from list below:
   a. 24 inches by 8 inches (610 mm by 203 mm) window in a rectangular two-piece black frame.
   b. 24 inches by 12 inches (610 mm by 305 mm) window in a rectangular two-piece black frame.
   c. 34 inches by 16 inches (864 mm by 406 mm) window in a rectangular two-piece black frame.
      1). Glass consisting of two panes of 1/8 inch (3.2 mm) thick DSB glass
      2). Glass consisting of two panes of 3/16 inch (4.8 mm) thick glass.
      3). Reinforced glass consisting of one pane of 1/4 inch (6.4 mm) thick wire-reinforced glass (exterior pane) and one pane of 1/8 inch (3.2 mm) DSB glass (interior pane).

   d. Full-view window consisting of aluminum stile and rail construction and color matched to door exterior with powdercoat paint.

      1). Glazing: Windows to be provided with non-impact rated glazing units as follows:
         a) 1/8 inch (3.2mm) Clear Glass consisting of one pane of 1/8 inch (3.2mm) DSB non-insulated glass.
         b) 3/16 inch (4.8mm) Clear Glass consisting of one pane of 3/16 inch (4.8mm) non-insulated glass.
         c) 1/4 inch (6.4mm) Clear Glass consisting of one pane of 1/4 inch (6.4mm) non-insulated glass.
         d) 1/8 inch (3.2mm) Clear Tempered Glass consisting of one pane of 1/8 inch (3.2mm) non-insulated glass.
         e) 1/4 inch (6.4mm) Clear Tempered Glass consisting of one pane of 1/4 inch (6.4mm) non-insulated glass.
         f) 3/16 inch (4.88mm) Clear Tempered Glass consisting of one pane of 3/16 inch (4.88mm) non-insulated glass.
         g) 1/4 inch (6.4mm) Clear Laminated Glass consisting of one pane of 1/4 inch (6.4mm) non-insulated glass.
         h) 1/4 inch (6.4mm) Clear Wire Glass consisting of one pane of 1/4 inch (6.4mm) non-insulated glass.
         i) 1/8 inch (3.2mm) Tinted Bronze Glass consisting of one pane of 1/8 inch (3.2mm) non-insulated glass.
         j) 1/4 inch (6.4mm) Laminated Bronze Glass consisting of one pane of 1/4 inch (6.4mm) non-insulated glass.
         k) 1/8 inch (3.2mm) Tinted Bronze Tempered Glass consisting of one pane of 1/8 inch (3.2mm) non-insulated glass.
         l) 1/4 inch (6.4mm) Tinted Smoke Grey Laminated Glass consisting of one pane of 1/4 inch (6.4mm) non-insulated glass.
         m) 1/2 inch (12.69mm) Insulated Clear Glass consisting of two panes of 1/8 inch (3.2mm) DSB insulated glass.
         n) 1/2 inch (12.69mm) Insulated Clear Tempered Glass consisting of two panes of 1/8 inch (3.2mm) Tempered insulated glass.
         o) 1/2 inch (12.69mm) Insulated Low E DSB Glass consisting of two panes of 1/8 inch (3.2mm) DSB insulated glass.

p) 1/2 inch (12.69mm) Insulated Low E Tempered Glass consisting of two panes of 1/8 inch (3.2mm) Tempered insulated glass.
q) 1/8 inch (3.2mm) Clear Acrylic consisting of one pane of 1/8 inch (3.2mm) Acrylic glazing.
r) 1/8 inch (3.2mm) Clear Lexan consisting of one pane of 1/8 inch (3.2mm) Lexan glazing.
s) 1/4 inch (6.4mm) Clear Acrylic consisting of one pane of 1/4 inch (6.4mm) Acrylic glazing.
t) 1/4 inch (6.4mm) Clear Lexan consisting of one pane of 1/4 inch (6.4mm) Lexan glazing.
u) 1/8 inch (3.2mm) Satin Annealed
v) 1/8 inch (3.2mm) Satin Tempered
w) 1/2 inch (12.69mm) Insulated Satin Glass consisting of two panes of 1/8 inch (3.2mm) DSB insulated glass.
x) 1/4 inch (6.4mm) Laminated White
y) 1/8 inch (3.2mm) Sandblasted Annealed
z) 1/8 inch (3.2mm) Sandblasted Tempered
aa) 1/2 inch (12.69mm) Insulated Sandblasted Glass consisting of two panes of 1/8 inch (3.2mm) DSB insulated glass.
bb) 1/2 inch (12.69mm) Insulated Sandblasted Glass consisting of two panes of 1/8 inch (3.2mm) Tempered insulated glass
cc) 1/8 inch (3.2mm) Smoked Gray
dd) 1/8 inch (3.2mm) Smoked Gray Tempered
ee) 1/2 inch (12/69mm) Insulated Smoked Gray Glass consisting of two panes of 1/8 inch (3.2mm) DSB insulated glass.
ff) 1/2 inch (12.69mm) Insulated Smoked Gray Glass consisting of two panes of 1/8 inch (3.2mm) Tempered insulated glass
gg) 1/8 inch (3.2mm) Lexan Smoked Gray
hh) 1/8 inch (3.2mm) Raised Pattern
ii) 1/8 inch (3.2mm) Raised Pattern Tempered
jj) 1/2 inch (12.69mm) Insulated Raised Pattern Glass consisting of two panes of 1/8 inch (3.2mm) DSB insulated glass.
kk) 1/8 inch (3.2mm) Insulated Raised Pattern
ll) 1/2 inch (12.69mm) Insulated Tinted Bronze Glass consisting of two panes of 1/8 inch (3.2mm) DSB insulated glass.
mm) 1/2 inch (12.69mm) Insulated Tinted Bronze Glass consisting of two panes of 1/8 inch (3.2mm) Tempered insulated glass
nn) 1/4” (6.4m) Laminated Frosted White

4. Mounting: Sections mounted in door opening using (select from list below):
   a. Between-Jamb Bracket Mounting: sections mounted between door jambs, seal against exterior perimeter seal installed along vertical and top horizontal edges of jambs.
   b. Lap Jamb Angle Mounting: section overlap door jambs by 1 inch (25 mm) on each side of door opening.
5. Track:
   a. Material: Hot-dipped galvanized steel (ASTM A 653), fully adjustable

for adequate sealing of door to jamb or weatherseal.

b. Configuration Type (select from list below):
    1) Configuration Type: Normal Headroom.
    2) Configuration Type: Low Headroom.
    3) Configuration Type: Vertical Lift.
    4) Configuration Type: Lift-Clearance.
    5) Configuration Type: Incline.
    6) Configuration Type: Contour.
c. Track Size (select from list below):
    1) Size: 2 inches (51 mm).
    2) Size: 3 inches (76 mm).
d. Mounting (select from list below):
    1) Bracket-Mount using adjustable track brackets for use on 2-inch track with wood jambs.
    2) Floor-to-Header Angle-Mount consisting of continuous angle extending from the floor up to the door header for use with steel, wood, or masonry jambs. Continuous angle size not less than 2-5/16 inches by 4 inches by 3/32 inch (59 by 102 by 2.5 mm) on 2-inch track and 3-1/2 inches by 5 inches by 1/8 inches (89 by 127 by 3.2 mm) on 3-inch track.
    3) Floor-to-Shaft Angle-Mount consisting of continuous angle extending from the floor, past header, completely up to door shaft for use with steel, wood, or masonry jambs. Continuous angle size not less than 2-5/16 inches by 4 inches by 3/32 inch (59 by 102 by 2.5 mm) on 2-inch track and 3-1/2 inches by 5 inches by 1/8 inches (89 by 127by 3.2 mm) on 3-inch track.
e. Finish (select from list below):
    1) Galvanized.
    2) White Powdercoat.

6. Counterbalance:
    a. Counterbalance System: Provided with aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs on a continuous ball-bearing cross-header shaft. Specify cycle life below (up to 200,000)
        1) Spring Cycle Requirements: Standard 10,000 cycles.
        2) Spring Cycle Requirements: High cycle: _____ cycles.
7. Hardware (specify roller sixe below):
    a. Hinges and Brackets: Fabricated from galvanized steel.
    b. Track Rollers: 2 inches (50.8 mm) diameter consistent with track size, with hardened steel ball bearings.
    c. Track Rollers: 3 inches (76.2 mm) diameter consistent with track size, with hardened steel ball bearings.
    d. Perimeter Seal 9optionally provided): Provide complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.
        1) For bracket mounted doors provide climate seal or vinyl seal with aluminum retainer.
        2) For angle mounted doors provide angle clip-on seal.
    e. Furnish door system with locks (optionally provided): Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
    f. Furnish door system with locks (optionally provided): Interior lock with dead bolt provided with hole to receive padlock provided by Owner.
8. ThermaSeal Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Raynor also

warrants the door sections against delamination of the insulation from the steel skins for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.